

X-RAY SPECTRAL STUDY OF A NEWLY GINGA-DETECTED DQ HER

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The goal of this proposal was to observe with ASCA, YY Dra, a DQ Her object identified using archival Ginga data, in order to complete a high quality ASCA study of Ginga-detected DQ Her stars. There are relatively few DQ Her objects (characterized by X-ray pulsations at the white dwarf spin period and optical pulsations at the orbital period and extremely complex X-ray spectra. The ASCA study included seven DQ Her objects.

ASCA is able to resolve separate components of the Fe K emission and to set constraints on temperatures in the accretion column, and the mass of the white dwarf. The 40ksec observation, corresponding to roughly three orbital cycles, allowed the study of continuum changes with spin and orbital phase.

The ASCA spectrum can be modelled as a bremsstrahlung with evidence for cold, helium-like and hydrogen-like iron emission, and helium-like argon emission. The lines yield a plasma temperature that is compatible with that from the continuum modelling (10-20 keV). The X-ray light-curve clearly shows sinusoidal variation from the spin pulse and shallow absorption dips at the orbital cycle.

The derived parameters match well with the 'accretion curtain' model for intermediate polars.

The results will be presented together with the seven other DQ Her type sources observed with ASCA.

"An ASCA survey of DQ Her Objects identified from GINGA"
Schachter, Vrtilik, Smith, Osborne, and Rosen. In preparation for submission to MNRAS. (There are no page charges associated with MNRAS).